

REMARKS/ARGUMENTS

In the Office Action mailed May 1, 2009 (hereinafter, "Office Action"), claims 1, 3-4, 6-8, 10-11 and 13-20 stand rejected under 35 U.S.C. § 103. Claims 5 and 12 were objected to as being dependent upon a rejected claim, but would be allowable if rewritten in independent form. Claims 1, 8 and 19 have been amended.

Applicants respectfully respond to the Office Action.

I. Claims 1, 3-4, 6-8, 10-11 and 13-20 Rejected Under 35 U.S.C. § 103

Claims 1, 3-4, 6-8, 10-11 and 13-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,437,654 to Das et al. (hereinafter, "Das") in view of U.S. Patent Application Publication No. 2005/0058154 to Lee et al. (hereinafter, "Lee-William") in view of U.S. Patent Application publication No. 2001/0030955 to Lee et al. (hereinafter, "Lee-Young").¹ This rejection is respectfully traversed.

The factual inquiries that are relevant in the determination of obviousness are determining the scope and contents of the prior art, ascertaining the differences between the prior art and the claims in issue, resolving the level of ordinary skill in the art, and evaluating evidence of secondary consideration. KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 2007 U.S. LEXIS 4745, at **4-5 (2007) (citing Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17-18 (1966)). As the Board of Patent Appeals and Interferences has recently confirmed, "obviousness requires a suggestion of all limitations in a claim." In re Wada and Murphy, Appeal 2007-3733 (citing CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003)). Moreover, the analysis in support of an obviousness rejection "should be made explicit." KSR, 2007 U.S. LEXIS 4745, at **37. "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." Id. (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)).

¹ It appears that these applications were mislabeled in the Office Action as the first named inventor of U.S. Patent Application publication No. 2001/0030955 is "William C.Y. Lee," and the first named inventor of U.S. Patent Application publication No. 2005/0058154 is "Young Jo Lee." It is not always clear which of the applications the Office Action intended to refer to in citing specific excerpts of these applications. Applicants have attempted to

Applicants respectfully submit that the claims at issue are patentably distinct from the cited references. The cited references do not teach or suggest all of the subject matter in the claims.

Claim 1, as amended, recites “determining a first number of installments for transmission of a first subpacket of data; determining a second number of installments for transmission of the first subpacket of data, the second number less than the first number; determining power boost gain factors for the second number of installments using latency tolerance information . . . power boosting transmissions of the second number of installments of the first subpacket of data by applying the power boost gain factors; and terminating transmission of the first subpacket of data after the second number of installments.” Support for the amendments to claim 1 is found, for example, at paragraph [0079] and Figure 14 of the specification.

Applicants respectfully submit that this subject matter is not taught or suggested by the cited references. The Office acknowledges that “terminating transmission of the first subpacket of data after the second number of installments” is not clearly taught or suggested by either Das or Lee-William. (Office Action, pages 3-4.) Instead, the Office Action relies on paragraphs [0053]-[0054] of Lee-Young² to teach this subject matter. (Office Action, page 4.) These paragraphs of Lee-Young, state:

There are two standard error correction schemes used in data communications for implementing error control, i.e., “go back n frames” (i.e., re-transmit the last n frames) and “selective repeat” (i.e., re-transmit only the frame with errors). It is generally believed that “selective repeat” is a more efficient scheme for re-transmitting frames with errors. However, the overhead associated with “selective repeat” can be quite significant, since every frame in error needs to be acknowledged before delivery to the upper layers 202 in the correct order or sequence.

FIG. 8 is a block diagram that illustrates an exemplary frame 800 transmitted by the network protocol 200 according to the preferred embodiment of the present invention, wherein the frame includes a header 802, data portion 804, CRC 806, and an indicator field 808 (which may be part of the header 802 or the data portion 804). The present invention enhances the traditional selective repeat

determine which excerpts were meant to be referenced by the Office Action. However, to avoid further confusion Applicant has retained the labels employed in the Office Action.

² In this case, it appears that the Office Action indeed intended to reference Lee-Young rather than the Lee-William as paragraphs [0053]-[0054] of Lee-William relate to, for example, decreasing subsequent power levels in contrast to “power boosting transmissions,” as recited in claim 1.

scheme by performing a "sub-frame" selective repeat. Specifically, each of the bits in the indicator field 808 indicates the parity of some subset of bits in the data portion 804 of the frame 800 (e.g., each bit in a particular position of the indicator field 808 represents the parity for a subset of bits in the same relative position in the data portion 804 of the frame 800). When a parity error occurs as determined by the bits in the indicator field 808, only the associated subset of bits in the data portion 804 of the frame 800 need to be re-transmitted, rather than the entire frame 800 itself.

(Lee-Young, paragraphs [0053]-[0054] (emphasis added).) This excerpt of Lee-Young discloses “performing a ‘sub-frame’ selective repeat . . . [such that] only the associated subset of bits in the data portion 804 of the frame 800 need to be re-transmitted.” This is very different from the claimed subject matter which recites “terminating transmission of the first subpacket of data after the second number of installments,” “the second number [of installments being] less than the first number,” the “first number of installments [being the number of installments determined] for transmission of a first subpacket of data.” In contrast, Lee teaches transmitting all the data, and then re-transmitting a portion of the data (a sub-frame selective repeat) for which errors were received, rather than “terminating transmission of the first subpacket of data after the second number of installments.” Using the claimed “power boosting,” the claimed subject matter transmits within a second, lesser “number of installments” in contrast to transmitting all the data and then re-transmitting some of the data when errors are detected, as explained in Lee-Young. Applicants thus respectfully submit that the cited references do not teach or suggest the claimed subject matter.

In addition, as indicated above, claim 1 has been amended to recite “determining power boost gain factors for the second number of installments using latency tolerance information.” An electronic search of the cited references, shows that neither Das, Lee-Young, nor Lee-William include the term “latent” or “latency.” Further, the Office Action (at page 3) relies on Lee-William at paragraphs [0037] and [0050]-[0053] to teach the language “determining power boost gain factors” of claim 1. These paragraphs of Lee-William, however, teach decreasing subsequent power transmission levels and that “the power level determined for each sub-packet may be determined based on channel state and/or a system state” (Lee-William, paragraphs [0050]-[0052]) rather than “determining power boost gain factors for the second number of installments using latency tolerance information,” as recited in amended claim 1.

In view of the foregoing, Applicants respectfully submit that claim 1 is patentably distinct from the cited references. Accordingly, Applicants respectfully request that the rejection of claim 1 be withdrawn because Das, alone or in combination with Lee-William and Lee-Young, does not teach or suggest all of the subject matter of claim 1.

Claims 3-4 and 6-7 depend directly from claim 1. Accordingly, Applicants respectfully request that the rejection of claims 3-4 and 6-7 be withdrawn.

Claim 8 has been amended to recite “means for determining power boost gain factors for the second number of installments using latency tolerance information” and “means for terminating transmission of the first subpacket of data after the second number of installments.” As discussed above, Das, alone or in combination with Lee-William and Lee-Young, does not teach or suggest this claimed subject matter. Accordingly, Applicants respectfully submit that claim 8 is allowable. Claims 10-11 and 13-14 depend directly from claim 8, and are therefore allowable for at least the same reasons.

Claim 19 has been amended to recite “code for determining power boost gain factors for the second number of installments using latency tolerance information” and “code for terminating transmission of the first subpacket of data after the second number of installments.” As discussed above, Das, alone or in combination with Lee-William and Lee-Young, does not teach or suggest this claimed subject matter. Accordingly, Applicants respectfully submit that claim 19 is allowable.

Claim 15 recites “a power boost unit adapted to: determine a portion of the installments to which to apply a power boost, and apply the power boost factor to the portion of the installments,” and “wherein [a] packet processing unit terminates transmission of the installments on receipt of a negative acknowledgement message after the portion of the installments is transmitted.” Applicants submit that Das, alone or in combination with Lee-William and Lee-Young, does not teach or suggest this claimed subject matter. Instead, these references teach, for example, re-transmitting data after a negative acknowledgement or error is received rather than terminating transmission. (See, e.g., Das, Figure 1, step numbers 125, 135, and 140; Lee-William, paragraph [0044] (“a method is provided for re-transmitting data through a reverse link in Packet Data communication system using automatic repeat request (ARQ) adjusting data retransmission energy to be reduced at a predetermined ratio of one receiving

energy for an initial data transmission to other receiving energy for a data re-transmission.” (emphasis added)); and Lee-Young, Abstract (“These techniques determine when errors occur in transmitted frames, then apply Bit Error Rate Power Control, Power-Based Re-Transmission, and Sub-Frame Selective Repeat methods to these errors”) and paragraphs [0053]-[0054].) Accordingly, Applicants respectfully submit that claim 15 is allowable.

Claim 16 recites “transmitting a first negative acknowledgement message for a last installment of a first subpacket, the first negative acknowledgement transmitted at a first time slot; and transmitting a second negative acknowledgement message for the last installment of the first subpacket, the second negative acknowledgement transmitted at a second time slot, wherein the second time slot is designated for the first subpacket of the next packet.”

The Office Action’s position on this subject matter is not clear to Applicants. Applicants could not identify any portion the Office Action that specifically addresses this subject matter of claim 16. (Office Action, pages 3-5.) However, the Office Action appears to indirectly address this subject matter in connection with dependent claim 17 by reference to paragraphs [0053]-[0057] of Lee-William. (Office Action, page 5.) It further appears that the Office Action intended to reference paragraphs [0053]-[0057] of Lee-Young, as paragraphs [0053]-[0057] of Lee-William do not reference a “bit pattern,” as indicated in the Office Action at page 5. In any case, paragraphs [0053]-[0057] of Lee-William reference decreasing transmission power until an acknowledgement is received, and paragraphs [0053]-[0057] of Lee-Young reference re-transmission of a portion of a frame based on a parity bit within an indicator field 808, as shown in Figures 8 and 9 of Lee-Young. Each of the parity bits relate to a separate portion of a frame rather than both relating to the “last installment of a first subpacket,” as recited in claim 1. (See, Lee-Young, paragraph [0056] (“the frame 800 includes an indicator field 808 comprised of a plurality of bits and one of the bits in the indicator field 808 indicates a parity for the portion of the frame 800 received in error.”)) Further, Applicants could not identify any portion of the cited references that teaches or suggests “transmitting a first negative acknowledgement message for a last installment of a first subpacket, the first negative acknowledgement transmitted at a first time slot; and transmitting a second negative acknowledgement message for the last installment of the first subpacket, the second negative acknowledgement transmitted at a second time slot, wherein the second time slot is designated for the first subpacket of the next packet” (emphasis added), as

recited in claim 16. Accordingly, Applicants respectfully submit that claim 16 is allowable. Claim 17 depends directly from claim 16, and is therefore allowable for at least the same reasons.

Claim 18 recites “means for transmitting a second negative acknowledgement message for the last installment of the first subpacket, the second negative acknowledgement transmitted at a second time slot, wherein the second time slot is designated for the first subpacket of the next packet.” As discussed above, Applicants submit that Das, alone or in combination with Lee-William and Lee-Young, does not teach or suggest this claimed subject matter. Accordingly, Applicants respectfully submit that claim 18 is allowable.

Claim 20 recites “code for transmitting a second negative acknowledgement message for the last installment of the first subpacket, the second negative acknowledgement transmitted at a second time slot, wherein the second time slot is designated for the first subpacket of the next packet.” As discussed above, Applicants submit that Das, alone or in combination with Lee-William and Lee-Young, does not teach or suggest this claimed subject matter. Accordingly, Applicants respectfully submit that claim 20 is allowable.

II. Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 5 and 12 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

CONCLUSION

In view of the foregoing, Applicants respectfully submit that all pending claims in the present application are in a condition for allowance, which is earnestly solicited. Should any issues remain unresolved, the Examiner is cordially invited to contact the undersigned at the number provided below.

Please charge any fees or overpayments that may be due with this response to Deposit Account No. 17-0026.

Respectfully submitted,

Dated: 8/31/09

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